REMARKS

The Office Action mailed January 25, 2008 has been carefully considered.

Reconsideration in view of the following remarks is respectfully requested.

Claim Status and Amendment of the Claims

Claims 1-60 are currently pending.

No claims stand allowed.

Claims 1-5, 7-13, 15-38, 40-46, and 48-60 have been amended to further particularly

point out and distinctly claim subject matter regarded as the invention. The amendments include

replacing all occurrences of "said" with "the." Support for these changes may be found in the

specification, figures, and claims as originally filed.

With this Amendment it is respectfully submitted the claims satisfy the statutory

requirements.

The 35 U.S.C. § 101 Rejection

Claims 57-60 stand rejected under 35 U.S.C. § 101, as allegedly containing non-statutory

subject matter.[1] This rejection is respectfully traversed.

The Examiner states,

> ... the limitation is recited as "A program storage device readable by a machine,
> tangibly embodying a program of instructions by the machine to perform a ....
> which does not comply with the 101 interim guidelines set forth therein (please
> refer to pages 525-3 of the 101 interim guidelines). It is well established that a
> computer program product or a software product or computer readable code, per
> se is not a physical "thing" and does not define any structural and functional
> interrelationship between the computer program code and the rest of the
> computer, which permits the computer program's functionality to be realized. In

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[1] Office Action at ¶ 2.

order for a computer program or software instructions to be statutory it must be embodied (encoded) in a computer-readable medium capable of being executed by a computer.

Thus, claims 57-60 are directed to non-statutory subject matter since the patent protection sought by the claimed invention is for the computer program in the abstract. Appropriate corrections are required for the claim without introducing any new matter to the disclosure.

The Applicant respectfully disagrees. According to the MPEP, *In re Beauregard* Claims

57-60 as filed in the original specification form part of the disclosure:

> The claims as filed in the original specification are part of the disclosure and therefore, if an application as originally filed contains a claim disclosing material not disclosed in the remainder of the specification, the applicant may amend the specification to include the claimed subject matter.[2]

Accordingly, with this Amendment, the Specification has been amended to provide further

support for the claimed program storage device.

Additionally, in the seminal case of *In re Beauregard* 53 F.3d 1583 (Fed.Cir. 1995), the

U.S. Patent and Trademark Office agreed to a dismissal of the case and agreed to allow the

pending claims, one of which became claim 10 of U.S. Patent No. 5,710,578, which reads:

> 10. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for filling a polygon having a boundary definable by a plurality of lines displayed on a graphics display of said machine, said method steps comprising:
> [LIST OF STEPS OMITTED]

As is readily apparent, the above language is essentially identical in all important ways to

the language of the preambles of presently rejected claims 57-60 as currently amended, i.e.,

> 57.   (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method, the method comprising:
> [STEP LIMITATIONS OMITTED]

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[2] M.P.E.P. § 2163.06.

58.   (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method, the method comprising:
            [STEP LIMITATIONS OMITTED]

59.   (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method, the method comprising:
            [STEP LIMITATIONS OMITTED]

60.   (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method, the method comprising:
            [STEP LIMITATIONS OMITTED]

Accordingly, the legal precedent being that claims worded like this are statutory and are allowable, it is respectfully requested that this rejection be withdrawn and the case passed to issue.

The 35 U.S.C. § 112, Second Paragraph Rejection

Claims 1-60 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention.[3] With this Amendment, non-means-plus-function apparatus claims 24-33 have been amended to recite the claimed components with more particularity. Accordingly, withdrawal of the 35 U.S.C. § 112, second paragraph rejection is respectfully requested.

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[3] Office Action at ¶ 4.

The First 35 U.S.C. § 102 Rejection

Claims 1-15, 32, and 34-48 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by <u>Kadambi et al.</u>[4][5] This rejection is respectfully traversed.

According to the M.P.E.P., a claim is anticipated under 35 U.S.C. § 102(a), (b) and (e) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.[6]

Claim 1

Claim 1 as presently amended recites:

A method comprising:
determining a present need to pause traffic to a network device; and
responsive to the determining,
> placing in a type/length field in a frame, a value signifying the frame indicates that traffic flow to the network device should be paused;
> placing in an opcode field in the frame, a value signifying that traffic flow to the network device should be paused or not paused according to its priority level;
> creating a priority mask field in the frame; and
> placing in the priority mask field, a value signifying which priority levels should be paused.

The Examiner states,

> ... Kadambi et al in the invention of "Flow Based Congestion Control" disclosed a method for generating a frame indicating that traffic flow should be paused to a network device, the traffic flow having varying priority levels (Figs 10 to 17), the method comprising: placing a value signifying that the frame indicates that traffic flow should be paused in a type/length field in the frame (LENGTH/TYPE Field of Fig 17); placing a value signifying that traffic flow should be paused or not paused according to its priority level in an opcode field in the frame (col 15, lines 11-59); creating a priority mask field in the frame (OPCODE 1_3 field of Fig 16); and placing a value signifying which priority levels should be paused in said

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[4] U.S. Patent No. 7,212,534 to <u>Kadambi et al.</u>
[5] Office Action at ¶ 6.
[6] Manual of Patent Examining Procedure (MPEP) § 2131.   See also *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

priority mask field in the frame (PRIORITY_BITMAP field of Fig 16, col 14, lines 41-46).[7]

The Applicants respectfully disagree for the reasons set forth below.

Kadambi et al. speaks generally about a virtual channel (VC) handshake, whereby link partners exchange information regarding their respective VC capabilities. The VC handshake frames include a pause timer field.[8] Once the VC handshake process is completed, the link partners may communicate with each other based on the known VC capabilities exchanged during the VC handshake; fields including the pause timer field remain the same after the VC handshake process, regardless of a real-time congestion condition. Whereas Claim 1 as presently amended requires the recited modifications of a frame to be performed upon determining a present need to pause traffic to a network device. With this Amendment, Claim 1 has been amended to make this distinction more clear. The claimed modification of a frame allows more accurate modulation of pause frames based on actual congestion conditions.

Kadambi et al. Does Not Disclose Placing In The Priority Mask Field, A Value Indicating Which Priority Levels Should Be Paused

Additionally, contrary to the Examiner's statement, Kadambi et al. does not disclose placing in the priority mask field, a value signifying which priority levels should be paused as required by Claim 1. In support of the Examiner's statement, the Examiner refers to the following portion of Kadambi et al.:

> On the switch side, congestion status is maintained per port, per priority. In fact, this is the format used to communicate between the switch and the client. The congestion status is actually a combination of a port bitmap and a priority bitmap. This eases the implementation for the following reasons.[9]

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[7] Office Action dated January 25, 2008, pp. 4-5.
[8] Kadambi et al. at col. 6 ll. 66-67.
[9] Kadambi et al. at col. 14 ll. 41-46.

Although not cited by the Examiner, <u>Kadambi et al.</u> goes on to say:

> For the switch side, the device does not need to keep track of flow ids (other than calculating them the same was as the client). When congestion is detected, the switch generates a VC frame indicating the congested egress ports for the packet and sets *the* bit in the priority bitmap that the packet would use in the switch. (The priority indicated here can actually be a remapped priority, but the client doesn't need to worry about that). On the client side, the congestion information for the flow is stored exactly as it appears in the VC flow control frame.[10]

The Examiner also refers to FIG. 16 of <u>Kadambi et al.</u>, which illustrates a *de-assert* VC frame format. The Applicants assume the Examiner intended to refer to FIG. 15, which illustrates an *assert* VC frame format. Figure 15 is repeated below for the Examiner's convenience, including annotations by the Applicant:

Bit	31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16	15 14 13 12 11 10 9 8	7 6 5 4 3 2 1 0
+0	RESERVED PRIORITY_BITMAP	OPCODE1_2	OPCODE0_ALL1
+32	FLOW_ID		
+64	FLOW_ID		
+96	EGRESS_BITMAP		
+128	EGRESS_BITMAP		

Field	Bit(s)	Description
OPCODE0_ALL1	7:0	Opcode 0 field must have value of 0xFF
OPCODE1_2	15:8	Opcode 1 field with value of 2 indicates an egress-priority flow assert operation. The ports indicated in the EGRESS_BITMAP are congested for the priority indicated in the PRIORITY_BITMAP. This is paired with the indicated flow id (which may be the destination MAC address for the packet.)
PRIORITY_BITMAP	23:16	Bitmap of priorities for the given egress(es) which are congested. This can be treated as an abstract bitmap since the priorities may be remapped in the switch. In general, only one bit in this bitmap should be set
RESERVED	31:24	Reserved
FLOW_ID	32:95	64-bit field to indicate the flow id. The exact format and mechanism for generation is to be determined (probably through negotiation between the endpoints). One example would be the destination MAC address.
EGRESS_BITMAP	96:159	64-bit port bitmap for congested egress ports

"In general, only one bit in this bitmap should be set"

Fig. 15

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[10] <u>Kadambi et al.</u> at col. 14 ll. 47-56. (emphasis added)

As an initial matter, both FIGS 15 and 16 of <u>Kadambi et al.</u> apparently refer to *internal* message formats used to communicate congestion information between ports within or internal to the same switch. Therefore, the figures cannot be said to disclose message formats for inter-device messages. More specifically, the figures cannot be said to disclose placing in a type/length field in a frame, a value signifying the frame indicates that traffic flow to <u>a network device</u> should be paused as required by Claim 1. (emphasis added) For the same reason, the figures cannot be said to disclose placing in an opcode field in the frame, a value signifying that traffic flow <u>to the network device</u> should be paused or not paused according to its priority level as required by Claim 1. (emphasis added)

As shown in FIG. 15 of <u>Kadambi et al.</u>, PRIORITY_BITMAP is a bitmap of priorities for the switch egress *ports* that are congested. The portion of the figure highlighted by the Applicant also indicates that *only one* bit in the bitmap should be set. EGRESS_BITMAP is a port indicating the switch egress *ports* that are congested. And the description for the OPCODE1_2 field indicates that the ports indicated in the EGRESS_BITMAP are congested for *the* priority indicated in the PRIORITY_BITMAP. Whereas Claim 1 requires placing in the priority mask field, a value signifying which priority *levels* should be paused. For this reason, the 35 U.S.C. § 102 rejection of Claim 1 is unsupported by the cited art of record. Thus, a *prima facie* case has not been established and the rejection must be withdrawn.

Claim 2

Claim 2 as presently amended recites:

> The method of claim 1, wherein the placing in an opcode field in the frame
>   includes placing a value signifying that traffic flow to the network device
>   should be paused or not paused according to its priority level, and that the

pausing will be for time indicated by a pause time field in the frame without regard for the priority level, in an opcode field in the frame if it is desired to use the same pause time for each priority level.

The Examiner states,

> ... Kadambi et al disclosed wherein said placing a value signifying that traffic flow should be paused or not paused according to its priority level in an opcode field in the frame includes placing a value signifying that traffic flow should be paused or not paused according to its priority level (inhibit or allow transmission of frames), and that the pausing will be for time indicated by a pause time field in the frame without regard for said priority level (control parameter field of Fig 16), in an opcode field in the frame if it is desired to use the same pause time for each priority level (col 15, lines 19-35).[11]

The Applicants respectfully disagree. In support of the Examiner's statement, the

Examiner refers to a "control parameter field of FIG. 16." However, a "control parameter field"

is not shown in FIG. 16. The only place a "control parameter" is discussed in Kadambi et al.

clearly indicates that the control parameter is separate from any opcode field:

> The PAUSE operation is used to inhibit transmission of data frames for a specified period of time. When the Ethernet switch wants to inhibit transmission of data frames from another station on the network, it generates the MAC Control frame with following fields:
> Destination Address=Globally assigned 48-bit multicast address (01-80-C2-00-00-01);
> Source Address="don't care: 48 bits";
> Length/Type Field=Universally assigned for MAC Control of CSMA/CD LANs (0.times.88-08);
> **Op-code control**=PAUSE op-code (0x00-01);
> **Control Parameter**=length of time for which to inhibit data frame transmission;
> Reserved Fields=42 bytes of Reserved field is transmitted as all zeroes;
> FCS=4 bytes of std. CRC computation.[12]

Accordingly, Kadambi et al. cannot be said to disclose placing in an *opcode* field in the frame

includes placing a value signifying that traffic flow to the network device should be paused or not

paused according to its priority level, and that the pausing will be for time indicated by a pause

time field in the frame without regard for the priority level, *in an opcode field* in the frame if it is

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[11] Office Action, p. 5.

desired to use the same pause time for each priority level. For this additional reason, the 35

U.S.C. § 102 rejection of Claim 2 is unsupported by the cited art of record and the rejection must

be withdrawn.

Claim 3

Claim 3 as presently amended recites:

> The method of claim 1, wherein the placing in an opcode field in the frame includes placing a value signifying that traffic flow to the network device should be paused or not paused according to its priority level, and that the pausing will be for times corresponding to each priority level indicated by a pause time field, in an opcode field in the frame if it is not desired to use the same pause time for each priority level.

The Examiner states,

> ... Kadambi et al disclosed wherein said placing a value signifying that traffic flow should be paused or not paused according to its priority level in an opcode field in the frame includes placing a value signifying that traffic flow should be paused or not paused according to its priority level (inhibit or allow transmission of frames, col 15, lines 19-35), and that the pausing will be for times corresponding to each priority level indicated by a pause time field, in an opcode field in the frame if it is not desired to use the same pause time for each priority level (col 3, lines 41-52).[13]

The Applicants respectfully disagree. In support of the Examiner's statement, the Examiner

refers to the following portion of Kadambi et al.:

> Additionally, the step of waiting for the congestion at the one priority queue to abate can include awaiting a resume virtual channel message from the remote network device and/or monitoring a pause timer, which is started upon receipt of the virtual channel message and sending data destined for the one priority queue once the pause timer reaches a certain value. Also, the virtual channel between the network device and the remote network device can be negotiated prior to the receipt of the virtual channel message, and the states of congestion of the priority queues may be represented by a bitmap, that is a combination of a port bitmap and a priority bitmap.[14]

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[12] Kadambi et al. at col. 15 ll. 19-36. (emphasis added)
[13] Office Action, pp. 5-6.
[14] Kadambi et al. at col. 3 ll. 41-52.

First, as Claim 3 depends from Claim 1, the term "placing" refers to the same term in Claim 1. The "placing" of Claim 1 is responsive to determining a present need to pause traffic to a network device. Therefore, the "placing" recited in Claim 3 must also be responsive to determining a present need to pause traffic to a network device. This is not disclosed by the portion of Kadambi et al. cited by the Examiner.

Furthermore, the above portion Kadambi et al. cited by the Examiner speaks generally about monitoring a pause timer, but says nothing about placing a value in an *opcode* field signifying that the pausing will be for *times* corresponding to *each priority level* indicated by a pause time field as required by Claim 3. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 3 is unsupported by the cited art of record and the rejection must be withdrawn.

Claim 4

Claim 4 as presently amended recites:

The method of claim 3, further comprising:
placing a separate value for each possible priority level in the pause time field, the
separate value indicating an independent pause time for each corresponding priority
level.

The Examiner states,

... Kadambi et al disclosed placing a separate value for each possible priority level
in said pause time field, said separate value indicating an independent pause time
for each corresponding priority level (Figs 14/15, col 13, lines 8-30).[15]

The Applicants respectfully disagree. In support of the Examiner's statement, the Examiner refers to FIGS. 14 and 15 of Kadambi et al., yet neither figure refers to a separate (i.e. independent) pause time field for each corresponding priority level. The Examiner also refers to the following portion of Kadambi et al.:

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[15] Office Action, p. 6.

In addition, the priority flow control can be egress based. In this mode of operation, the congestion is detected on the egress port with differentiation based on priority. This results in a VC control frame being sent to other ports when the switch's ingress detects packets being sent to the congested port/priority. The use of such a mode is illustrated in FIG. 14.

The following describes the sequence of events involved in egress based priority flow control. 1) Servers A 1410 and B 1450 are sending traffic to the switch 1400, where the switch also communicates with Workstations 1420 1440 through separate ports. 2) Priority Queue 1 in egress port 3 in switch is congested. An internal message is sent to all switch ports indicating that port 3/priority queue 1 is congested. 3) Switch port 1 sends a VC Priority Flow Control frame to Server A indicating the priority 1 is blocked. 4) Server A decodes the VC frame and stops sending frames from priority queue 1. 5) When switch port 3/priority 1 is no longer congested, an internal message is sent to all the ingress ports. 6) Switch port 1 sends a VC Priority Flow Control frame to Server A indicating the priority 1 is not congested. 7) Server A resumes sending traffic from priority queue 1.[16]

The above portion of Kadambi et al. says nothing about time fields, let alone placing a separate value for each possible priority level in the pause time field, the separate value indicating an independent pause time for each corresponding priority level as required by Claim 4. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 4 is unsupported by the cited art of record and the rejection must be withdrawn.

Claim 5

Claim 5 as presently amended recites:

The method of claim 4, wherein the pause time field is equal in size to the pause time field in a standard PAUSE frame multiplied by the number of possible priority levels.

The Examiner states,

... wherein said pause time field is equal in size to the pause time field in a standard PAUSE frame multiplied by the number of possible priority levels and wherein the frame is a PAUSE frame (col 9, lines 32-39).[17]

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[16] Kadambi et al. at col. 13 ll. 8-30.
[17] Office Action, p. 6.

The Applicants respectfully disagree. In support of the Examiner's statement, the Examiner

refers to the following portion of <u>Kadambi et al.</u>:

> In general, the pause timer value indicated in the VC Handshake frame should be obeyed. In this way, pause may be asserted during the VC Handshake if required. If a non-zero pause time is specified by the VC Handshake frame, then the receiver of the frame may send further VC Handshake frames, but it should not send normal frames until the Pause time is elapsed (or until pause has been de-asserted).[18]

The above portion of <u>Kadambi et al.</u> speaks generally about obeying a pause time, but says

nothing about the pause time field being equal in size to the pause time field in a standard

PAUSE frame multiplied by the number of possible priority levels as required by Claim 5. For

this additional reason, the 35 U.S.C. § 102 rejection of Claim 5 is unsupported by the cited art of

record and the rejection must be withdrawn.

Claim 8

Claim 8 as presently amended recites:

> The method of claim 4, wherein the value signifying that traffic flow to the network device should be paused or not paused according to its priority level is a value not used by standard PAUSE frames in the opcode field.

The Examiner states,

> ... Kadambi et al disclosed wherein said value signifying that traffic flow should be paused or not paused according to its priority level is a value not used by standard PAUSE frames in said opcode field (col 15, lines 60-67).[19]

The Applicants respectfully disagree. In support of the Examiner's statement, the Examiner

refers to the following portion of <u>Kadambi et al.</u>:

> IEEE 802.1D-conformant bridges will not forward frames sent to this multicast destination address, regardless of the state of the bridge's ports, or whether or not the bridge implements the MAC Control sub-layer. To allow generic full duplex flow control stations implementing the PAUSE operation instruct the MAC (e.g.

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[18] <u>Kadambi et al.</u> at col. 9 ll. 32-39.
[19] Office Action, p. 6.

through layer management) to enable reception of frames with destination address equal to this multicast address.[20]

The above portion of Kadambi et al. says nothing about a value in an opcode field signifying that traffic flow should be paused or not paused according to its priority level being a value not used by standard PAUSE frames in the opcode field as required by Claim 8. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 8 is unsupported by the cited art of record and the rejection must be withdrawn.

Claim 9

Claim 9 as presently amended recites:

A method comprising:
placing in a type/length field in a frame, a value signifying that traffic flow to a network device should be paused or not paused according to its priority level;
creating a priority mask field in the frame; and
placing in the priority mask field, a value signifying which priority levels should be paused.

The Examiner states,

> ... A method for generating a frame indicating that traffic flow should be paused to a network device, the traffic flow having varying priority levels (Figs 10 to 17), the method comprising: placing a value signifying that traffic flow should be paused or not paused according to its priority level in an type/length field in the frame (LENGTH/TYPE Field of Fig 17, col 15, lines 11-59); creating a priority mask field in the frame; and placing a value signifying which priority levels should be paused in said priority mask field in the frame (PRIORITY_BITMAP field of Fig 16, col 14, lines 41-46).[21]

The Applicants respectfully disagree. The arguments made above with respect to the 35 U.S.C. § 102 rejection of Claim 1 apply here as well. Claim 1 being allowable, Claim 9 must also be allowable for at least the same reasons as for Claim 1.

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[20] Kadambi et al. at col. 15 ll. 60-67.
[21] Office Action, pp. 6-7.

Claim 10

Claim 10 as presently amended recites:

The method of claim 9, further comprising:
placing in an opcode field in the frame, a value signifying that the pausing will be for
time indicated by a pause time field in the frame without regard for the priority level
if it is desired to use the same pause time for each priority.

The Examiner states,

... Kadambi et al disclosed placing a value signifying that the pausing will be for
time indicated by a pause time field in the frame without regard for said priority
level in an opcode field in the frame if it is desired to use the same pause time for
each priority (col 15, lines 19-35).[22]

The Applicants respectfully disagree. The arguments made above with respect to the 35 U.S.C. §

102 rejection of Claim 2 apply here as well. Claim 2 being allowable, Claim 10 must also be

allowable for at least the same reasons as for Claim 2.

Claim 11

Claim 11 as presently amended recites:

The method of claim 9, further comprising:
placing in an opcode field in the frame, a value signifying that the pausing will be for
times corresponding to each priority level indicated by a pause time field if it is
desired to use the same pause time for each priority.

The Examiner states,

... Kadambi et al disclosed placing a value signifying that the pausing will be for
times corresponding to each priority level indicated by a pause time field in an
opcode field in the frame if it is desired to use the same pause time for each
priority (col 3, lines 41-52).[23]

The Applicants respectfully disagree. The arguments made above with respect to the 35 U.S.C. §

102 rejection of Claim 3 apply here as well. Claim 3 being allowable, Claim 11 must also be

allowable for at least the same reasons as for Claim 3.

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[22] Office Action, p. 7.

Claim 12

Claim 12 as presently amended recites:

The method of claim 11, further comprising:
placing in the pause time field, a separate value for each possible priority level, the
separate value indicating an independent pause time for each corresponding priority
level.

The Examiner states,

... Kadambi et al disclosed placing a separate value for each possible priority level
in said pause time field, said separate value indicating an independent pause time
for each corresponding priority level (Figs 14/15, col 13, lines 8-30).[24]

The Applicants respectfully disagree. The arguments made above with respect to the 35 U.S.C. §

102 rejection of Claim 4 apply here as well. Claim 4 being allowable, Claim 12 must also be

allowable for at least the same reasons as for Claim 4.

Claim 13

Claim 13 as presently amended recites:

The method of claim 12, wherein the pause time field is equal in size to the pause
time field in a standard PAUSE frame multiplied by the number of possible
priorities.

The Examiner states,

... Kadambi et al disclosed wherein said pause time field is equal in size to the
pause time field in a standard PAUSE frame multiplied by the number of possible
priorities (coil 15, lines 11-20).[25]

The Applicants respectfully disagree. The arguments made above with respect to the 35 U.S.C. §

102 rejection of Claim 5 apply here as well. Claim 5 being allowable, Claim 13 must also be

allowable for at least the same reasons as for Claim 5.

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[23] Office Action, p. 7.
[24] Office Action, p. 7.

Claim 32

With this Amendment, non-means-plus-function apparatus claims 32 has been amended

to correspond to method claim 16. As discussed below, the 35 U.S.C. § 102(e) rejection of

Claim 16 based on Erimli et al. is unsupported by the cited art of record. Claim 16 being

allowable, Claim 32 must also be allowable for at least the same reasons as for Claim 16.

The Second 35 U.S.C. § 102 Rejection

Claims 16-31, 33, and 49-60 stand rejected under 35 U.S.C. § 102(e) as allegedly being

anticipated by Erimli et al.[26][27] This rejection is respectfully traversed.

Claim 16

Claim 16 as presently amended recites:

A method comprising:
examining a value in a type/length field in a frame to determine if it signifies that the
        frame indicates that traffic flow to a network device should be paused;
examining a value in an opcode field in the frame to determine if it signifies that traffic
        flow to the network device should be paused or not paused according to its priority
        level, if the value in the type/length field signified that the frame indicates that traffic
        flow to the a network device should be paused; and
pausing traffic flow to the network device with priority levels corresponding to levels
        signified by a value in a priority mask field in the frame if the value in the opcode
        field signified that traffic flow to the network device should be paused or not paused
        according to its priority level and if the value in the type/length field signified that
        the frame indicates that traffic flow to the network device should be paused.

The Examiner states,

   ... Erimli et al in the invention of "Method and Apparatus for Controlling The
   Flow of Data Frames Through a Network Switch on a Port-by-Port Basis"
   disclosed a method for handling a frame in a network with traffic flow having
   varying priority levels (Figs 5A/B), the method comprising: examining a value in

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[25] Office Action, p. 7.
[26] U.S. Patent No. 6,405,258 to Erimli et al.
[27] Office Action at ¶ 7.

a type/length field in the frame to determine if it signifies that the frame indicates that traffic flow should be paused to a network device (5B, col 12, lines 57-67, col 13, lines 1-9); examining a value in an opcode field in the frame to determine if it signifies that traffic flow should be paused or not paused according to its priority level, if said value in said type/length field signified that the frame indicates that traffic flow should be paused to a network device (5B, col 13, lines 10-29); and pausing traffic flow with priority levels corresponding to levels signified by a value in a priority mask field in the frame if said value in said opcode field signified that traffic flow should be paused or not paused according to its priority level and if said value in said type/length field signified that the frame indicates that traffic flow should be paused to a network device (col 13, lines 30-39).[28]

The Applicants respectfully disagree for the reasons set forth below.

Erimli et al. Does Not Disclose Pausing Traffic Flow To The Network Device With Priority Levels Corresponding To Levels Signified By A Value In A Priority Mask Field In The Frame IF The Value In The Opcode Field Signified That Traffic Flow To The Network Device Sould Be Paused Or Not Paused According To Its Priority Level And If The Value In The Type/Length Field Signified That The Frame Indicates That Traffic Flow To The Network Device Should Be Paused

Contrary to the Examiner's statement, Erimli et al. does not disclose pausing traffic flow

to the network device with priority levels corresponding to levels signified by a value in a

priority mask field in the frame if the value in the opcode field signified that traffic flow to the

network device should be paused or not paused according to its priority level and if the value in

the type/length field signified that the frame indicates that traffic flow to the network device

should be paused as required by Claim 16. In support of the Examiner's statement, the Examiner

refers to FIG. 5B and the following portion of Erimli et al.:

> According to the disclosed embodiment of the invention, a different threshold value may be set for the high priority 410b and low priority 410a inputs of the output queue 400. Furthermore, each of the thresholds may be independently set, in real time, to accommodate the throughput of the low and high priority inputs (410a, 410b) of the output queue 400. Hence, the Opcode field of the PAUSE frame may include information that indicates whether the PAUSE frame corresponds to the high priority threshold value or the low priority threshold value.[29]

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[28] Office Action, p. 8.
[29] Erimli et al. at col. 13 ll. 30-39.

The above portion of Erimli et al. cited by the Examiner speaks generally about setting different threshold values for two different inputs of an output queue. But the cited portion of Erimli et al. says nothing about pausing traffic flow to the network device with priority levels corresponding to levels signified by a value in a priority mask field in the frame if the value in the opcode field signified that traffic flow to the network device should be paused or not paused according to its priority level and if the value in the type/length field signified that the frame indicates that traffic flow to the network device should be paused as required by Claim 16. (emphasis added) Erimli et al. apparently sends one packet per priority level, whereas Claim 16 requires the priority mask field in the frame signify priority levels of traffic flow to the device that should be paused. For the above reasons, the 35 U.S.C. § 102 rejection of Claim 16 is unsupported by the cited art of record and the rejection must be withdrawn.

Erimli et al. Does Not Disclose Examining A Value In A Type/Length Field In a Frame To Determine If It Signifies That The Frame Indicates That Traffic Flow To A Network Device Should Be Paused

Contrary to the Examiner's statement, Erimli et al. does not disclose examining a value in a type/length field in a frame to determine if it signifies that the frame indicates that traffic flow to a network device should be paused as required by Claim 16. In support of the Examiner's statement, the Examiner refers to the following portion of Erimli et al.:

> FIG. 5B illustrates the structure of an exemplary PAUSE frame that is transmitted when the number of frame pointers in one of the output queues 400 has exceeded the watermark threshold for that queue (either the high priority threshold or the low priority threshold). As illustrated in FIG. 5B, the PAUSE frame includes a destination address field (DA), a source address field (SA), a Type/Length field, an Opcode field, and a PAUSE length. The destination address field stores a reserved multicast destination address that is determined based on the particular configuration of the network system. The value of the multicast destination address is identical for all PAUSE frames transmitted by the workstations connected to the multiport switch. The source address field specifies the address

of the MAC transmitting the PAUSE frame as a result of its output queue 400 being congested. The Type/Length field specifies the Ethertype, while the Opcode field contains a MAC control Opcode. The values stored in the Ethertype and Opcode fields are determined according to the specific networking protocol (i.e., IEEE 802.3x) being implemented.[30]

The above portion of Erimli et al. cited by the Examiner speaks generally about the format of a PAUSE frame, indicating that the type/length field merely "specifies the Ethertype." But it says nothing about examining a value in a type/length field in a frame, let alone examining it to determine if the value in the type/length field signifies that the frame indicates that traffic flow to a network device should be paused as required by Claim 16. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 16 is unsupported by the cited art of record. Thus, a *prima facie* case has not been established and the rejection must be withdrawn.

Erimli et al. Does Not Disclose Examining A Value In An Opcode Field In The Frame To Determine If It Signifies That Traffic Flow To The Network Device Should Be Paused Or Not Paused According To Its Priority Level, If The Value In The Type/Length Field Signified That The Frame Indicates That Traffic Flow To The Network Device Should Be Paused

Contrary to the Examiner's statement, Erimli et al. does not disclose examining a value in an opcode field in the frame to determine if it signifies that traffic flow to the network device should be paused or not paused according to its priority level, if the value in the type/length field signified that the frame indicates that traffic flow to the a network device should be paused as required by Claim 16. In support of the Examiner's statement, the Examiner refers to FIG. 5B and the following portion of Erimli et al.:

> The PAUSE length specifies, in terms of slot times, the delay interval that must be observed by the workstation identified by the destination address. The length of the pause interval value is in the range of 0-65535 slot times, and is retrieved from one of the registers 522 or 532, depending on the port. The pause interval value programmed into registers 522 and 532 can be based on the severity of the congestion. For example, the pause length can be selected based on the average

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[30] Erimli et al. at col. 12 l. 57 to col. 13 l. 9.

throughput of entries for the congested output queue 400, or the time required to process each entry in the output queue. For example, if the average throughput of entries in the output queue 400 is high or the time required to process entries is long, then selection of a higher pause interval value will function to allow processing of sufficient entries without congesting the output queue 400. Similarly, if the average throughput of entries in the output queue 400 is low or the time required to process entries is short, then selection of a short pause interval value may be selected. Various other criteria may be used for selecting an appropriate pause interval depending on the specific application.[31]

Figure 5B of Erimli et al. is included below for the Examiner's convenience:

| DA | SA | Type/length | PAUSE Opcode | PAUSE Length |

FIG. 5B

The above portion of Erimli et al. cited by the Examiner speaks generally about the "PAUSE Length" field of FIG. 5B, not the "PAUSE Opcode" field. Therefore, the cited portion of Erimli et al. cannot be said to disclose examining a value in an opcode field in the frame. Furthermore, the cited portion of Erimli et al. says nothing about performing a check of this particular field if the value in the type/length field signified that the frame indicates that traffic flow to the a network device should be paused as required by Claim 16. For this additional reason, the 35 U.S.C. § 102 rejection of Claim 16 is unsupported by the cited art of record and the rejection must be withdrawn.

Claim 20

Claim 20 as presently amended recites:

A method comprising:
examining a value in a type/length field in a frame to determine if it signifies that the frame indicates that traffic flow to a network device should be paused and if it signifies that traffic flow to the network device should be paused or not paused according to its priority level; and

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[31] Erimli et al. at col. 13 ll. 10-29.

pausing traffic flow to the network device with priority levels corresponding to levels signified by a value in a priority mask field in the frame if the value in the type/length field signified that traffic flow to a network device should be paused and that traffic flow to the network device should be paused or not paused according to its priority level.

The Examiner states,

> ... Erimli et al disclosed a method for handling a frame in a network with traffic flow having varying priority levels (Figs 5A/B), the method comprising: examining a value in a type/length field in the frame to determine if it signifies that the frame indicates that traffic flow should be paused to a network device (5113, col 12, lines 57-67, col 13, lines 1-9) and if it signifies that traffic flow should be paused or not paused according to its priority level (col 13, lines 30-39); and pausing traffic flow with priority levels corresponding to levels signified by a value in a priority mask field in the frame if said value in said type/length field signified that traffic flow should be paused to a network device and that traffic flow should be paused or not paused according to its priority level (Figs 5A/B, col 12, lines 23-37, col 13, lines 1029).[32]

The Applicants respectfully disagree. The arguments made above with respect to the 35 U.S.C. § 102 rejection of Claim 16 apply here as well. Claim 16 being allowable, Claim 20 must also be allowable for at least the same reasons as for Claim 16.

Dependent Claims 17-19 and 21-23

Claims 17-19 depend from Claim 17. Claims 21-23 depend from Claim 20. Claims 16 and 20 being allowable, Claims 17-19 and 21-23 must also be allowable for at least the same reasons as for Claims 16 and 20.

Claims 24-31, 33, and 57-60

With this Amendment, non-means-plus-function apparatus claims 24, 28, and 33 have been amended to correspond to method claims 1, 9, and 20, respectively. Claims 1, 9, and 20 being allowable, Claims 24, 28, and 33 must also be allowable for at least the same reasons as for Claims 1, 9, and 20.

Claims 25-27 and 29-31 depend from Claims 24 and 28, respectively. Claims 24 and 28 being allowable, Claims 25-27 and 29-31 must also be allowable for at least the same reasons as for Claims 24 and 28, respectively.

Claims 57, 58, 59, and 60 are *In re Beauregard* claims corresponding to method claims 1, 9, 16, and 20, respectively. Claims 1, 9, 16, and 20 being allowable, Claims 57-60 must also be allowable.

Claims 34-56

Claims 34-56 are means-plus-function claims. In support of the 35 U.S.C. § 102 rejections of Claims 34-56, the Examiner refers to substantially the same portions of the cited references used in the rejection of method claims 1-23, non-means-plus-function apparatus claims 24-33, and *In re Beauregard* claims 57-60. The Examiner is referred to the U.S. Patent and Trademark Office document entitled "Examination Guidelines For Claims Reciting A "Means or Step Plus Function" Limitation In Accordance With 35 U.S.C § 112, 6th Paragraph" ("Guidelines"), a copy of which is submitted herewith for the Examiner's convenience. The Guidelines state:

> ... Per our holding, the 'broadest reasonable interpretation' that an examiner may give means-plus-function language is that statutorily mandated in paragraph six. Accordingly, *the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a Patentability determination ...*
> ... [The] examiner shall interpret a § 112, 6th paragraph "means or step plus function" limitation in a claim as limited to the corresponding structure, materials or acts described in the specification and equivalents thereof in acts accordance with the following guidelines.[33]

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[32] Office Action, p. 10.
[33] "Examination Guidelines For Claims Reciting A "Means or Step Plus Function" Limitation In Accordance With 35 U.S.C § 112, 6th Paragraph," U.S. Patent and Trademark Office, http://www.uspto.gov/web/offices/pac/dapp/pdf/exmgu.pdf, p. 1. (emphasis added)

The Guidelines state further:

> ... if a prior art reference teaches identity of function to that specified in a claim, then under <u>Donaldson</u> an examiner carries the <u>initial</u> burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function.[34]

As Claims 34-56 of the present application are means-plus-function claims and Claims 1-33 and 57-60 of the present application are non-means-plus-function claims, they cannot be said to be drawn to identical subject matter. Furthermore, the Examiner has not shown for each means-plus-function claim, that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function. Therefore, the Examiner has not established a *prima facie* case and the rejection of Claims 34-56 must be withdrawn.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

Conclusion

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

The Applicant respectfully requests that a timely Notice of Allowance be issued in this case.
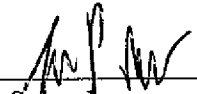
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[34] <u>Guidelines</u> at p. 3. (emphasis in original)

Please charge any additional required fee or credit any overpayment not otherwise paid or

credited to our deposit account No. 50-1698.

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Respectfully submitted,

THELEN REID BROWN
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Dated: July 17, 2008

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Examination Guidelines For Claims
Reciting A "Means or Step Plus Function" Limitation
In Accordance With 35 U.S.C § 112, 6th Paragraph

The purpose of this memo is to set forth guidelines for the examination of § 112, 6th paragraph "means or step plus f   unction" limitations in a claim. The court of Appeals for the Federal Circuit, in its en banc decision In re Donaldson 29 USPQ 2d 1845 (Fed. Cir. 1994), decided that a "means-or-step-plus-function" limitation should be interpreted in a manner different than patent examining practice has dictated for at least the last forty-two years. The Donaldson decision affects only the manner in which the scope of a "means or step plus function" limitation in accordance with § 112, 6th para graph, is interpreted during examination. Donaldson does not di rectly affect the manner in which any other section of the patent statutes is interpreted or applied.

When making a determination of patentability under 35 U.S.C. § § 102 or 103, past practice was to interpret a "means or step plus function" limitation by giving it the "broadest reasonable interpre tation." Under the PTO's long-standing practice this meant inter preting such a limitation as reading on any prior art means or step which performed the function specified in the claim without regard for whether the prior art means or step was equivalent to the corre sponding structure, material or acts described in the specification. However, in   Donaldson the Federal Circuit stated that:

Per our holding, the "broadest reasonable interpretation" that an examiner may give means-plus-function language is that statutorily mandated in paragraph six. Accordingly, the PTO may not disregard the structure disclosed in the specification corresponding to such language when rendering a Patentability determination. [1]

Thus, effective immediately, examiner shall interpret a § 112, 6th paragraph "means or step plus function" limitation in a claim as lim ited to the corresponding structure, materials or acts described in the specification and equivalents thereof in acts accordance with the following guidelines.

I.   Identifying a § 112, 6th paragraph limitation

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[1]In re Donaldson , 29 USPQ2d 1845, 1850 (Fed. Cir. 1994).

Although there is no magic language that must appear in a claim in order for it to fall within the scope of § 112, 6th paragraph, it must be clear that the element in the claim is set forth, at least in part, by the function it performs as opposed to the specific struc ture, material, or acts that perform the function. Limitations that fall within the scope of § 112, 6th paragraph include:

(1) a jet driving device so constructed and located on the rotor as to drive the rotor . . . [2] ["means" unnecessary]

(2) "printing means" and "means for printing" would have the same connotations [3]

(3) force generating means adapted to provi de . . .[4]

(4) call cost register means, including a digital display for providing a substantially instantaneous display for . . .[5]

(5) reducing the coefficient of friction of the resulting film[6] [step plus function; "step" unnecessary], and

(6) raising the Ph of the resultant pulp to about 5.0 to precipitate . . . [7]

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[2] The term "device" coupled with a function is a proper definition of structure in accordance with the last paragraph of § 112. The addition of the words "jet driving" to the term " device" merely renders the latter more definite and specific. Ex parte Stanley , 121 USPQ 621 (Bd. APP. 1958).

[3] Ex parte Klum , 159 USPQ 694 (Bd. App. 1967). However, the terms "plate" and "wing", as modifiers of the structureless term "means," specify no function to be performed, and do not fall under the last paragraph of § 112.

[4] De Graffenreid v. U.S., 20 Ct. Cl. 458, 16 USPQ2d 1321 (Ct. Cl. 1990)

[5] Intellicall Inc. v. Phonometrics Inc. , 952 F.2d 1384, 21 USPQ2d 1383 (Fed. Cir. 1992).

[6] In re Roberts , 470 F.2d 1399, 176 USPQ 313 (CCPA 1973).

[7] Ex parte Zimmerley , 153 USPQ 367 (Bd. App. 1966)

In the event that it is unclear whether the claim limitation falls within the scope of §112, 6th paragraph, a rejection under §112, 2d paragraph may be appropriate.

Donaldson does not affect the holding of In re Hyatt, 708 F.2d 712, 218 USPQ 195(Fed. Cir. 1983) to the effect that a single means claim does not comply with the enablement requirement of § 112, first paragraph. As Donaldson applies only to an interpretation of a limi tation drafted to correspond to § 112, 6th paragraph, which by its terms is limited to "an element in a claim to a combination," it does not affect a limitation in a claim is not directed to a combination.

II. **Examining Procedure**

A. Scope of the Search and Identification of the Prior Art

As noted above, in Donaldson the Federal Circuit recognized that it is important to retain the principle that claim language should be given its broadest reasonable interpretation. This principle is im portant because it helps insure that the statutory presumption of validity attributed to each claim of an issued patent is warranted by the search and examination conducted by the examiner. It is also important from the standpoint that the scope of protection afforded by patents issued prior to Donaldson are not unnecessarily limited by the latest interpretation of this statutory provision. Finally, it is important from the standpoint of avoiding the necessity for a patent specification to become a catalogue of existing technology. [8]

The Donaldson decision thus does not substantially alter examin ing practice and procedure relative to the scope of the search. Both before and after Donaldson, the application of a prior art reference to a means or step plus function limitation requires that the prior art element perform the identical function specified in the claim. However, if a prior art reference teaches identity of function to that specified in a claim, then under Donaldson an examiner carries the initial burden of proof for showing that the prior art structure or step is the same as or equivalent to the structure, material, or acts described in the specification which has been identified as corresponding to the claimed means or step plus function.

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[8]A patent specification need not teach, and preferably omits, what is well known in the art. Hybritech Inc. v. Monoclonal Antibod ies. Inc., 802 F.2d 1367, 1384, 231 USPQ 81, 94 (Fed. Cir. 1986).

The "means or step plus fu nction" limitation should be interpreted in a manner consistent with the specification disclosure. If the specification defines what is meant by the limitation for the purposes of the claimed invention, the examiner should interpret the limitation as having the meaning. If no definition is provided, some judgment must be exercised in determining the scope of the limita tion.

B. Making a prima facie case of equivalence

If the examiner finds that a prior art element performs the function specified in the claim, and is not excluded by any explicit definition provided in the specification for an equivalent, the exam iner should infer from that finding that the prior art element is an equivalent, and should then conclude that the claimed limitation is anticipated by the prior art element. The burden then shifts to ap plicant [9] to show that the element shown in the prior art is not an equivalent of the structure, mate rial or acts disclosed in the application. _In re Mulder_, 716 F.2d 1542, 219 USPQ 189 (Fed. Cir. 1983). [10] The factors to be

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[9] No further analysis of equivalents is required of the examiner until applicant disagrees with the examiner's conclusion, and provides reasons why the prior art element should not be considered an equivalent.

[10] See also, _In re Walter_, 618 F.2d at 768, 205 USPQ at 407-08, (a case treating § 112, 6th paragraph, in the context of a determination of statutory subject matter and noting "If the functionally-defined disclosed means and their equivalents are so broad that they encom pass any and every means for performing the recited functions . . . the burden must be placed on the applicant to demonstrate that the claims are truly drawn to specific apparatus distinct from other apparatus capable of performing the identical functions"); _In re Swinehart_, 439 F.2d 210, 212-13, 169 USPQ 226, 229 (C.C.P.A. 1971) (a case in which the CCPA treated as improper a rejection under § 112, 2d paragraph, of functional language, but noted that "where the Patent Office has reason to believe that a functional limitation asserted to be critical for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art, it pos sesses the authority to require the applicant to prove that the sub ject matter shown to be in the prior art does not possess the charac teristics relied on"); and _In re Fitzgerald_ 619 F.2d 67, 205 USPQ 594 (CCPA 1980) (a case indicating that the burden of proof can be shifted to the applicant to show that the subject matter of the prior art does not possess the characteristic relied on whether the rejec tion is based on inherency under § 102 or obviousness under § 103).

considered when determining whether the applicant has
successfully met the bur den of proving that the prior art element
is not equivalent to the structure, material or acts described in
the applicant's specifica tion are discussed below.

However, even where the applicant has met that burden of
proof and has shown that the prior art element is not equivalent
to the structure, material or acts described in the applicant's
specifica tion, the examiner must still make a §103 analys   is to
determine if the claimed means or step plus function is obvious
from the prior art to one of ordinary skill in the art. Thus,
while a finding of non equivalence prevents a prior art element
from anticipating a means or step plus function limitation in a
claim, it does not prevent the prior art element from rendering
the claim limitation obvious to one of ordinary skill in the art.

Because the exact scope of an "equivalent" may be uncertain,
it would be appropriate to apply a §102/§103 rejection where the
balance of the claim limitations are anticipated by the prior art
relied on. [11]   In addition, although it is normally the best
practice to rely on only the best prior art references in
rejecting a claim, alternative grounds of rejection may be
appropriate where the prior art shows elements that are different
from each other, and different from the specific structure,
material or acts described in the specification, yet perform the
function specified in the claim.

C.   Determining whether an applicant has met the burden of providing
      non-equivalence after a   *prima facie* case is made

If the applicant disagrees with the inference of equivalence
drawn from a prior art reference, the applicant may provide
reasons why the applicant believes the prior art element should
not be con sidered an equivalent to the specific structure,
material or acts disclosed in the specification. Such reasons may
include, but are not limited to: 1) teachings in the
specification that particular prior art is not equivalent, 2)
teaching in the prior art reference itself that may tend to show
non-equivalence, or 3) Rule 132 affidavit evidence of facts
tending to show non-equivalence.

When the applicant relies on teachings in applicant's own
speci fication, the examiner must make sure that the applicant is
inter preting the "means or step plus function" limitation in the

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[11]A similar approach is authorized in the case of product-by--
process claim because the exact identity of the claimed product
or the prior art product cannot be determined by the examiner.   In
re Brown , 450 F.2d 531, 173 USPQ 685 (CCPA 1972).

claim in a manner which is consistent with the disclosure in the specifica tion. If the specification defines what is meant by "equivalents" to the disclosed embodiments for the purpose of the claimed means or step plus function, the examiner should interpret the limitation as having that meaning. If no definition is provided, some judgment must be exercised in determining the scope of "equivalents." Gener ally, an "equivalent" is interpreted as embracing more than the spe cific elements described in the specification for performing the specified function, [12] but less than any element that performs the function specified in the claim.

The scope of equivalents embrace d by a claim limitation is dependent on the interpretation of an "equivalent". The interpretation will vary depending on how the element is described in the supporting specification. The claim may or may not be limited to particular structure, material or acts (e.g. steps) as opposed to any and all structure, material or acts performing the claimed function, de pending on how the specification treats that question.

If the disclosure is so broad as to encompass any and all struc ture, material or acts for performing the claimed function, the claims must be read accordingly when determining patentability. When this happens the limitation otherwise provided by "equivalents" ceases to be a limitation on the scope of the claim in that an equivalent would be any structure, material or act other than the ones described in the specification that perform the claimed function. For example, this situation will often be found in cases where (1) the claimed invention is a combination of elements, one or more of which are selected from elements that are old per se, or (2) appara tus claims are treated as indistinguishable from method claims. [13]

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[12] To interpret "means plus function" limitations as limited to a particular means set forth in the specification would nullify the provisions of § 112 requiring that the limitation shall be construed to cover the structure described in the specification and equivalents thereof. D.M.I., Inc. v. Deere & Co. , 755 F.2d 1570, 1574, 225 USPQ 236, 238 (Fed. Cir. 1985).

[13] See, for example, In re Meyer, 688 F.2d 789, 215 USPQ 193 (1982); In re Abele , 618 F.2d at 768, 205 USPQ at 401-08; In re Walter, 618 F.2d 758, 767, 205 USPQ 397, 406-07 (C.C.P.A. 1980); In re Maucorps , 609 F.2d 481, 203 USPQ 812 (C.C.P.A. 1979); In re Johnson , 589 F.2d, 1070, 200 USPQ 199 (C.C.P.A. 1978); and In re Freeman, 573 F.2d at 1246, 197 USPQ at 471.

On the other end of the spectrum, the "equivalents" limitation as applied to a claim may also operate to constrict the claim scope to the point of covering virtually only the disclosed embodiments. This can happen in circumstances where the specification describes the invention only in the context of a specific structure, material or act that is used to perform the function specified in the claim.

When deciding whether an applicant has met the burden of proof with respect to showing non-equivalence of a prior art element that performs the claimed function, the following factors may be consid ered. First, unless an element performs the identical function specified in the claim, it cannot be a equivalent for the purpose of §112, 6th paragraph. [14]

Second, while there is no litmus test for an "equivalent" that can be applied with absolute certainty and predictability, there are several indicia that are sufficient to support a conclusion that one element is or is not an "equivalent" of a different element in the context of § 112, 6th paragraph. Among the indicia that will support a conclusion that one element is or is not an equivalent of another are:

1) Whether the prior art element performs the function speci fied in the claim in substantially the same results as the corre sponding element disclosed in the specification. [15]

2) Whether a person of ordinary skill in the art would have recognized the interchangeability of the element shown in the prior art for the corresponding element disclosed in the specification. [16]

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[14] Pennwalt Corp. v. Durand-Wayland Inc . 833 F.2d 931, 4 USPQ2d 1737 (Fed. Cir. 1987), cert. denied , 484 U.S. 961 (1988).

[15] Lockheed Aircraft Corporation v. United States , 193 USPQ 449, 461 (Ct. Cl. 1977). Graver Tank concepts of equivalents are relevant to any "equivalents" determination. Polumbo v. Don-Joy Co., 762 F.2d 696, 975, n. 4, 226 USPQ 5, 8-9, n. 4 (Fed. Cir. 1985).

[16] Lockheed Aircraft Corporation v. United States , 193 USPQ 449, 461 (Ct. Cl. 1977). Data Line Corp. v. Micro Technologies. Inc ., 813 F.2d 1196, 1 USPQ2d 2052 (Fed. Cir. 1987).

3) Whether the prior art element is <u>a structural equivalent</u> of the corresponding element disclosed in the specification being exam ined.[17] That is, the prior art element performs the function speci fied in the claim in substantially the same manner as the function is performed by the corresponding element described in the specifica tion.

4) Whether the structure, material   or acts disclosed in the specification represents an insubstantial change which adds nothing of significance to the prior art element.   [18]

These examples are not intended to be an exhaustive list of the indicia that would support a finding that one element is or is not an equivalent of another element for the purposes of § 112, 6th para graph. A finding according to any of the above examples would repre sent a sufficient, but not the only possible, basis to support a con clusion that an element is or is not   an equivalent. There could be other indicia that also would support the conclusion.

In determining whether arguments or Rule 132 evidence presented by an applicant are persuasive that the element shown in the prior art is not an equivalent, the examiner should consider and weigh as many of the above-indicated or other indicia as are pre sented by applicant, and should determine whether, on balance, the applicant has met the burden of proof to show non-equivalence. How ever, under no circumstance should a n examiner accept as persuasive a bare statement or opinion that the element shown in the prior art is not an equivalent embraced by the claim limitation. Moreover, if an applicant argues that the "means" or "step" plus function language in a claim is limited to certain specific structural or additional func   tional characteristics (as opposed to "equivalents" thereof) where the specification does not describe the invention as being only those specific characteristics, the claim should not be allowed until the claim is amended to recite those specific structural or additional functional characteristics.   [19]

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[17]<u>In re Bond</u>, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

[18]<u>Valmont Industries Inc. v. Reinke Manufacturing Co. Inc.,</u>   983 F.2d 1039, 25 USPQ2d 1451 (Fed. Cir. 1993).

[19]Otherwise, a claim could be allowed having broad functional language which in reality is limited to only the specific structure or steps disclosed in the specification. This would be

Finally, as in the past, applicant has the opportunity during proceedings before the Office to amend the claims so that the claimed invention meets all the statutory criteria for patentability. An applicant may choose to amend the claim by further limiting the func tion so that there is no longer identity of function with that taught by the prior art element, or the applicant may choose to replace the claimed means plus function limitation with specific structure material or acts that are not described in the prior art.

D. Related issues under Section 112 first or secon d paragraphs

The Donaldson decision may create some uncertainty as to what applicant regards as the invention. If this issue arises, it should be addressed in a rejection under §112, 2d paragraph. While § 112, 6th paragraph permits a particular form of claim limitation, it can not be read as creating an exception either to the description, enablement or best mode requirements of the 1st paragraph or the definiteness requirement of the 2d paragraph of § 112. In re Knowlton, 481 F.2d 1357, 178 USPQ 486 (CCPA 1973). If a "means or step plus function" limitation recited in a claim is not supported by corresponding structure, material or-acts in the specification disclosure, the following rejections should be considered: (1) under § 112, 1st paragraph, as not being supported by an enabling disclosure because the person skilled in the art would not know how to make and use the invention without a description of ele ments to perform the function; [20] (2) under § 112, 2d paragraph, as being indefinite because the element or step is not defined in the specification by corresponding structure, material or acts; (3) under § § 102 or 103 where the prior art anticipates or renders obvious the claimed subject matter including the means or step that performs the function specified in the claim. (Theory: since there is no corresponding structure, etc. in the specification to limit the means or step plus function limitation, an equivalent is any element that performs the specified function).

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contrary to public policy of granting patents which provide adequate notice to the public as to a claim's true scope.

[20] The description of an apparatus with block diagrams describing the function, but not the structure, of the apparatus is not fatal under the enablement requirement of § 112, 1st paragraph, as long as the structure is conventional and can be determined without an undue amount of experimentation. In re Ghiron, 442 F. 2d 985, 991, 169 USPQ 723, 727 (CCPA 1971)

III. <u>Avoid confusion</u> with the doctrine of equivalents

An "equivalent" for the purposes of § 112, 6th paragraph, should not be confused with the doctrine of equivalents. The doctrine of equivalents, most often associated with <u>Graver Tank & Mfg. Co.</u> v. <u>Linde Air Products</u> 339 U.S. 605, 85 USPQ 328 (1950), is sometimes applied to do equity among the parties before the court in an in fringement action involving an issued patent. The doctrine typically involves a three-part inquiry - whether an accused device performs substantially the same function, in substantially the same way, to obtain substantially the same result as the claimed invention.

Section § 112, 6th paragraph limits the scope of the broad language of "means or step plus function" limitations, in a claim to a combination, to the structures, materials and acts described in the specification and equivalents thereof. The doctrine of equivalents equitable expands exclusive patent rights beyond the literal scope of a claim. [21] Accordingly, decisions involving the doctrine of equiva lents should not unduly influence a determination under § 112, 6th paragraph during <u>ex parte</u> examination.

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[21]<u>Valmont Industries Inc., Reinke Manufacturing Co., Ind.,</u> 983 <u>F.2d 1039, 1043, 1044, 25 USPQ2d 1451, 1455 (Fed. Cir. 1993).</u>